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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,852	12/05/2005	Richard Perkins	PHUS030157	2095
65913	7550	12/12/2008	EXAMINER	
NXP, B.V. NXP INTELLECTUAL PROPERTY DEPARTMENT M/S41-SJ 1109 MCKAY DRIVE SAN JOSE, CA 95131			TRAN, PABLO N	
			ART UNIT	PAPER NUMBER
			2618	
			NOTIFICATION DATE	DELIVERY MODE
			12/12/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

# Office Action Summary

**Application No.**

10/560,852

**Applicant(s)**

PERKINS, RICHARD

**Examiner**

Pablo N. Tran

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Haub et al. (hereinafter "Haub", US Pat. No. 6,944,427) in view of Tokuda et al. (hereinafter "Tokuda", US Pat No 6,035,213).

As per claim 1, Haub disclose a method of reducing the effects of intermodulation distortion in a zero-IF receiver comprising receiving an RF signal, modulating the RF signal to provide one or more baseband signals, detecting an occurrence of intermodulation distortion within the one or more baseband signals, and selectively enabling a wide-notch filter to attenuate signal components of the one or more baseband signals within a predetermined notch-width of the wide-notch filter based on the occurrence of the intermodulation distortion (fig. 3-6, col. 6/ln. 62-col. 7/ln. 19).

Haub does not disclose that the wide notch filter having various modes. However, Tokuda teaches such a receiver that incorporates a variable notch filter to suppress intermodulation (see fig. 8/no. 105, fig. 12/no. 105, fig. 13/no. 108, and col. 3/ln. 5-col. 4/ln. 51). Therefore, it would have been obvious to one of ordinary skill in

the art at the time of invention for Haub to incorporate such a notch filter, as taught by Tokuda, to effectively suppressing disturbing signals.

As per claims 2 and 11, the modified communication system of Haub in view of Tokuda further disclose the predetermined notch-width is approximately  $\pm 60$  kHz, and approximately centered at zero-Hertz (see Haub, fig. 4, fig. 6).

As per claim 3, the modified communication system of Haub in view of Tokuda further disclose detecting a cessation of the intermodulation distortion, and selectively disabling the wide mode of the notch filter, based on the cessation of the intermodulation distortion (see Tokuda, col. 8/ln. 42-56, col. 9/ln. 16-30, col. 9/ln. 44-60).

As per claim 4, the modified communication system of Haub in view of Tokuda further disclose determining a plurality of signal strength measures, and determining the occurrence of intermodulation distortion based on a relationship among the plurality of signal strength measures (see Haub, col. 7/ln. 20-col. 8/ln. 38, col. 9/ln. 51-col. 10/ln. 56, see Tokuda, col. 6/ln. 24-col. 7/ln. 16).

As per claims 5 and 14, the modified communication system of Haub in view of Tokuda further disclose an RSSI measure, and an Eb/Nt measure, and determining the occurrence of intermodulation distortion if the Eb/Nt measure is below a first threshold value when the RSSI measure is above a second threshold value (see Haub, col. 7/ln. 20-col. 8/ln. 38, col. 9/ln. 51-col. 10/ln. 56, see Tokuda, col. 6/ln. 24-col. 7/ln. 16).

As per claim 6, the modified communication system of Haub in view of Tokuda further disclose selectively disabling the wide mode of the wide-notch filter when the

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Eb/Nt measure substantially increases (see Tokuda, col. 8/ln. 42-56, col. 9/ln. 16-30, col. 9/ln. 44-60).

As per claim 7, the modified communication system of Haub in view of Tokuda further disclose an RSSI measure, and an RF energy measure; and determining the occurrence of intermodulation distortion if the RSSI measure is below a first threshold value when the RF energy measure is above a second threshold value (see Haub, col. 7/ln. 20-col. 8/ln. 38, col. 9/ln. 51-col. 10/ln. 56, see Tokuda, col. 6/ln. 24-col. 7/ln. 16).

As per claim 8, the modified communication system of Haub in view of Tokuda further disclose a first measure of energy in a first frequency band of the one or more baseband signals, and a second measure of energy in a second frequency band of the one or more baseband signals, the second frequency band being higher than the first frequency band; and determining the occurrence of intermodulation distortion if the first measure of energy is substantially higher than an estimated first measure of energy corresponding to the second measure of energy absent intermodulation distortion (see Haub, col. 7/ln. 20-col. 8/ln. 38, col. 9/ln. 51-col. 10/ln. 56, see Tokuda, col. 6/ln. 24-col. 7/ln. 16).

As per claim 9, the modified communication system of Haub in view of Tokuda further disclose disabling the wide mode of the wide-notch filter based on a duration since enabling the wide mode of the wide-notch filter (see Tokuda, col. 8/ln. 42-56, col. 9/ln. 16-30, col. 9/ln. 44-60).

As per claim 10, Haub disclose a mixer that is configured to convert a

received RF signal to an analog baseband signal, a detector that is configured to assert a detection signal when intermodulation distortion is detected in the analog baseband signal, a filter, operably coupled to the mixer and the detector, that is configured to selectively attenuate signal components in the analog baseband signal when the detection signal is asserted, and a baseband processor that is configured to receive the analog baseband signal and to provide therefrom a receiver output (fig. 3, fig. 5).

Haub does not disclose that the wide notch filter having various modes. However, Tokuda teaches such a receiver that incorporates a variable notch filter to suppress intermodulation (see fig. 8/no. 105, fig. 12/no. 105, fig. 13/no. 108, col. 3/ln. 5-col. 4/ln. 51). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention for Haub to incorporate such a notch filter, as taught by Tokuda, to effectively suppressing disturbing signals.

As per claim 12, the modified communication system of Haub in view of Tokuda further disclose the detector is further configured to de-assert the detection signal to activate the normal mode of the wide-notch filter based on a duration since asserting the detection signal (see Tokuda, col. 8/ln. 42-56, col. 9/ln. 16-30, col. 9/ln. 44-60).

As per claim 13, the modified communication system of Haub in view of Tokuda further disclose the baseband processor is further configured to provide digital measures of signal strengths in the analog baseband signal, and the detector is operably coupled to the baseband processor and is configured to detect the intermodulation distortion in the analog baseband signal based on the digital measures

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of signal strengths from the baseband processor (see Haub, col. 7/ln. 20-col. 8/ln. 38, col. 9/ln. 51-col. 10/ln. 56, see Tokuda, col. 6/ln. 24-col. 7/ln. 16).

As per claim 15, the modified communication system of Haub in view of Tokuda further disclose the detector de-asserts the detection signal to activate the normal mode of the wide-notch filter when the  $E_b/N_t$  measure substantially increases (see Tokuda, col. 8/ln. 42-56, col. 9/ln. 16-30, col. 9/ln. 44-60).

As per claim 16, the modified communication system of Haub in view of Tokuda further disclose the detector is configured to detect the intermodulation distortion in the analog baseband signal based on: a first measure of signal strength in the analog baseband signal, and a second measure of signal strength in the received RF signal; and the detector asserts the detection signal for activating the wide mode of the wide-notch filter when the first measure is below a first threshold value and the second measure is above a second threshold value (see Tokuda, col. 8/ln. 42-56, col. 9/ln. 16-30, col. 9/ln. 44-60).

As per claim 17, the modified communication system of Haub in view of Tokuda further disclose the detector is configured to detect the intermodulation distortion in the analog baseband signal based on: a first measure of energy in a first frequency band of the analog baseband signal, and a second measure of energy in a second frequency band of the analog baseband signal, the second frequency band being higher than the first frequency band; and the detector asserts the detection signal for activating the wide mode of the wide-notch filter when the first measure of energy is substantially higher than an estimated first measure of energy corresponding to the second measure

of energy absent intermodulation distortion (see Tokuda, col. 8/ln. 42-56, col. 9/ln. 16-30, col. 9/ln. 44-60).

As per claim 18, the modified communication system of Haub in view of Tokuda further disclose the baseband processor is further configured to provide the first and second measures of energy to the detector (see Haub, col. 7/ln. 20-col. 8/ln. 38, col. 9/ln. 51-col. 10/ln. 56, see Tokuda, col. 6/ln. 24-col. 7/ln. 16).

As per claim 19, the modified communication system of Haub in view of Tokuda further disclose the received RF signal is a quadrature-modulated signal, and the mixer is configured to provide a pair of quadrature signals that comprise the analog baseband signal (see Haub, fig. 1).

As per claim 20, the modified communication system of Haub in view of Tokuda further disclose the filter is a digital filter that is included within the baseband processor (see Haub, fig. 3, fig. 5).

### ***Response to Arguments***

3. Applicant's arguments with respect to claims 1 and 10 have been considered but are moot in view of the new ground(s) of rejection.
4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pablo Tran whose telephone number is (571)272-7898. The examiner normal hours are 9:30 -5:00 (Monday-Friday). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (571)272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.
6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) System. Status information for Published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-directauspto.gov>. Should You have questions on access to the Private PAIR system, contact the Electronic

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Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (in USA or CANADA) or 571-272-1000.

December 8, 2008

/Pablo N Tran/

Primary Examiner, Art Unit 2618